



# Superfund At Work

## Hazardous Waste Cleanup Efforts Nationwide

### Industrial Waste Control Site Profile

**Site Description:**

Former coal strip mine and landfill

**Site Size:** 8 acres

**Primary Contaminants:**

Volatile organic compounds and heavy metals

**Potential Range of Health Effects:**

**Acute** toxicity, skin and eye irritation, respiratory distress, central nervous system disorders, increased risk of cancer

**Nearby Population Affected:**

75 to 100 people within 1/2 mile

**Year Listed on NPL:** 1982

**EPA Region:** 6

**State:** Arkansas

**Congressional District:** 3

### *Successin Brief*

## Cooperative Efforts Hasten Cleanup in Arkansas

Years ago, many people viewed the land as a commodity with unlimited resources to be taken, harnessed, and used up if necessary. Places of great ecological wealth were logged, mined, monocultured, overgrazed, or left barren. One scarred remnant of this attitude is a strip mine converted to a landfill called Industrial Waste Control (IWC) near Fort Smith, Arkansas.

Ten years of hazardous waste dumping contaminated the soil and tainted area ground water. But the days are gone when irresponsible land management precedes reckless abandonment. Instead, a group of companies that had taken industrial wastes to the landfill cooperated to responsibly clean up the site. Together with officials from the U.S. Environmental Protection Agency (EPA) and the Arkansas Department of Pollution Control and Ecology (ADPCE), this old coal strip mine has been closed forever, the surface restored and replanted with native vegetation.

The IWC site cleanup had a number of notable features: a desire by private parties to finish the job as quickly as possible, prompting them to begin work while financial liabilities were being negotiated; and a settlement worth \$11.4 million that restored site soil and prevented area drinking water from becoming polluted. By working together, EPA, the state, and waste contributors saved time, money, and environmental resources.

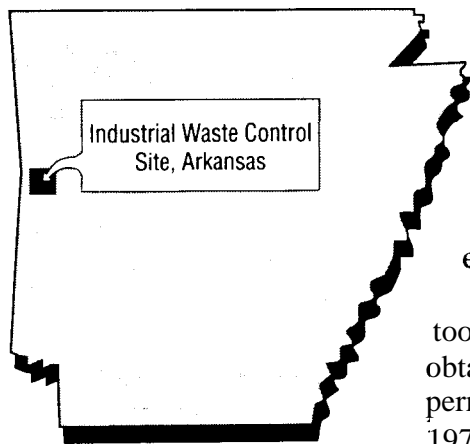
## The Site Today

Removal operations, soil contaminant stabilization, and construction of a slurry wall and French drain system to contain ground water pollutants was completed in 1991. EPA and the state will commence a five-year review in 1994. Ground water monitoring will continue for at least 30 years, as will inspection of stormwater diversion ditches and the multilayer synthetic and natural-element cap.



Workers excavated 20,000 yards of contaminated soil after removing tons of construction debris from the old strip mine.

## A Site Snapshot



This eight-acre site near Fort Smith, Arkansas was an abandoned coal strip mine that was converted to an industrial waste landfill. Several coal mines operated from the late 1800s through

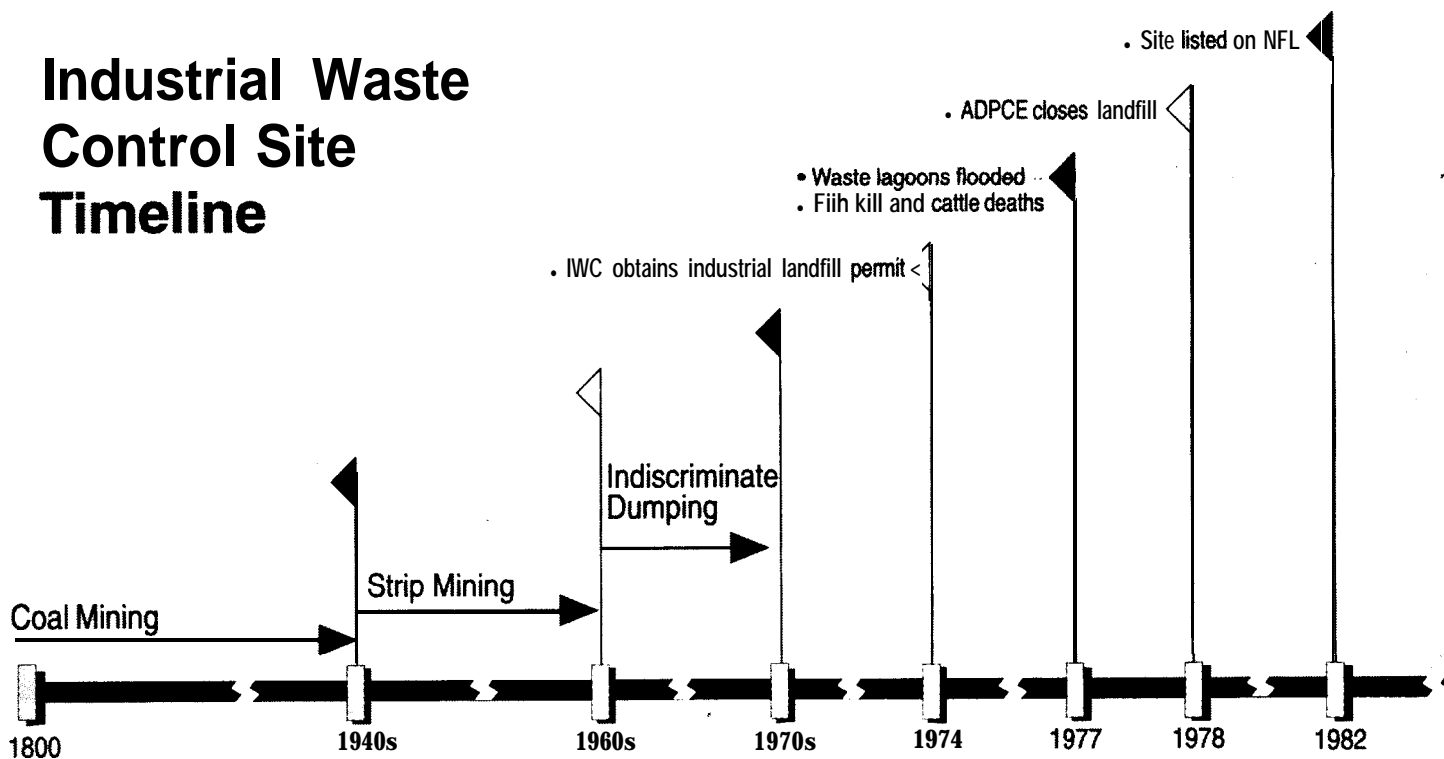
the 1940s and surface strip mining commenced shortly thereafter. When the mines were abandoned in the late 1960s, indiscriminate dumping of various solid wastes ensued.

Industrial Waste Control took over the property and obtained an industrial landfill permit from the ADPCE in 1974. IWC operators accepted paint wastes, solvents, manufacturing process residues, and heavy metal sludges. IWC constructed several lagoons on the property to dispose of liquid wastes. Volatile organic compounds (VOCs) including trichloroethylene, toluene, and ethyl benzene, as well as heavy

metals including chromium, lead, nickel, and zinc contaminated the site.

Many of these waste chemicals can cause acute toxic reactions, skin and eye irritation, respiratory problems, increased risk of cancer, and central nervous system disorders. The site is located in a rural area, but 18 homes are within a half-mile radius, and the nearest residence is 200 feet away. Although none of these homes rely on private wells for drinking water, several local wells are used for growing crops and maintain various types of livestock.

## Industrial Waste Control Site Timeline



# Toxic Chemicals Dumped in Abandoned Strip Mine Threatened Rural Serenity

## Livestock Deaths Provoke Landowner Suit

The IWC site came to the attention of Arkansas environmental officials in March 1977 when the waste lagoons flooded and contaminated nearby livestock pastures and ponds, poisoning fish and several head of cattle. Local landowners filed for damages, and so the operator covered the landfill with soil, planted grasses and ground covers, and abandoned the property in 1978. Shortly thereafter, EPA began preliminary assessments to characterize the severity of contamination.

IWC was one of hundreds of problem industrial sites that brought about passage of the Comprehensive Environmental Response, Compensation, and Liability Act in 1980. This law

established the "Superfund" program to clean up the myriad problems associated with improper hazardous waste disposal. IWC qualified for federal cleanup assistance in December 1982 after placement on the National Priorities List (NPL), EPA's roster of uncontrolled or abandoned hazardous waste sites.

## Samples Find VOCs and Heavy Metals

A two-year comprehensive investigation included surveys, residential well and surface water samples, and underground exploration activities. Toxic substances were found in various concentrations in site soil, sediment, and perched ground water. During these studies, EPA installed monitoring wells to deter-

mine where contaminants had migrated off site into area ground water. In June 1986, EPA presented six potential cleanup alternatives to local residents for review and comment.

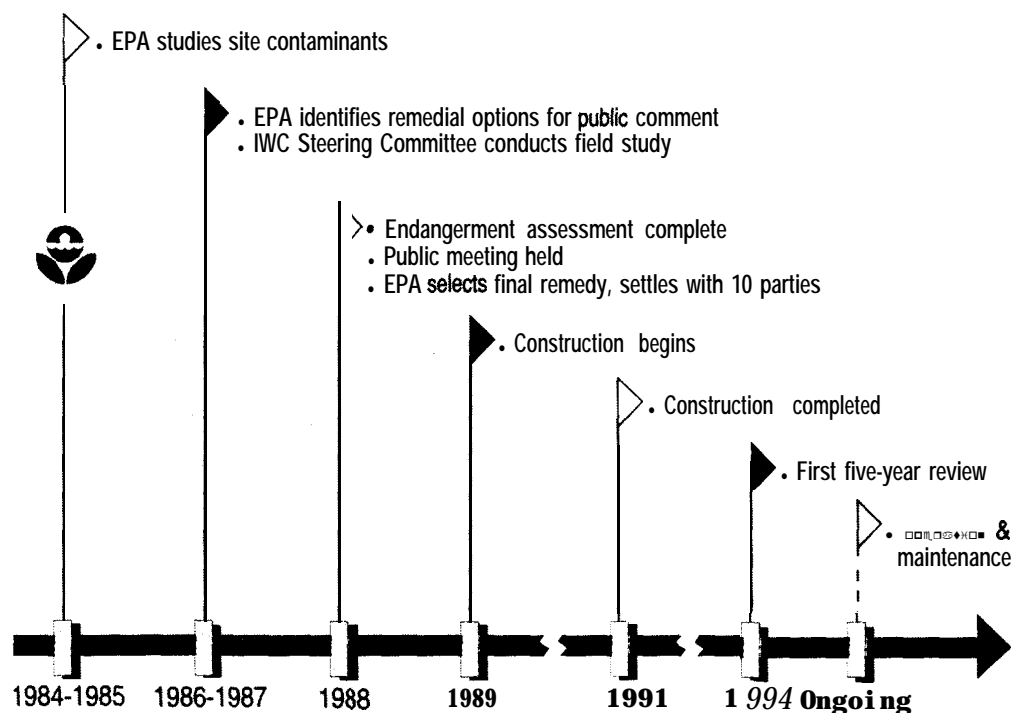
In the meantime, several waste contributors formed the IWC Steering Committee and conducted a Hydrogeologic and Waste Quantification Study that was completed in 1987. This study located buried drums containing both solid and liquid wastes and helped map out underground mine tunnels north of the site.

Although local water sources remained uncontaminated, the buried drums could easily have disintegrated, releasing additional wastes to percolate through the soil and further contaminate ground water through the extensive underground mine tunnels.

## EPA Takes a Second Look

In 1988, EPA conducted an endangerment assessment outlining potential health and environmental hazards associated with the site. Data and summaries of all the site investigations were made available for public review at local libraries, the county courthouse, the ADPCE office in Little Rock, and the EPA office in Dallas, Texas.

EPA explained the various studies, outlined cleanup options, and answered questions at a public meeting held in May, 1988 at the Sebastian County Courthouse. Citizens were satisfied



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with EPA's preferred remedy and eager for cleanup activities to begin.

After a two-month public comment period, EPA selected the remedy that most effectively reduced the volume, toxicity, and mobility of the hazardous materials at the site, based on technical feasibility, long-term effectiveness, and cost. EPA's proposal was to treat the most highly contaminated wastes, restrict the movement of on-site ground water, and avert any off-site migration of contaminants.

### **Responsible Parties Conduct Cleanup**

In July 1988, EPA began negotiations with waste contributors to conduct a comprehensive remediation of the site. Ten parties agreed to settle and began the construction design, a cooperative action that saved 18 months.

EPA approved their design in August 1989 and remedial work began in November. Initial steps involved removing approximately 300 drums filled with hazardous

liquid to an approved off-site incineration facility. The cleanup crew then excavated 20,000 cubic yards of contaminated soil and mixed solidifying agents with the wastes to deactivate the toxic substances. Workers also installed a fence around the perimeter of the site.

To prevent the movement of contaminants in ground water, an underground barrier called a slurry wall was constructed around the area to contain the chemical and metal wastes. Workers then covered the entire area with a multi-layer cap consisting of a synthetic liner, clay, soil, and natural vegetation.

Ditches and earthen berms were built to divert rain water from contaminated areas. Water collecting in the ditches flowed into a French drain, a perforated pipe surrounded by a sand and gravel filter. Diverting precipitation from the protective cap prevented any further migration of pollutants that could have leached into area ground water.

Construction was completed in March 1991, under EPA and

## **Success at IWC site**

A high degree of cooperation among representatives from EPA, the State of Arkansas, and waste contributors was a major factor in the IWC site cleanup, helping reduce cleanup time and environmental hazards. Community relations efforts kept the public informed and ensured participation in the remedy selection. A multi-layer protective cover encapsulates the waste and protects drinking water sources for future generations.

state supervision. EPA will conduct a five-year review in 1994. The responsible parties will periodically monitor ground water quality to ensure that the selected remedy is effective in the future.



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